UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,944	02/22/2002	Lisa A. Buckman	10004353-1	6545

7590 05/17/2005

AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER	
BELLO, AGUSTIN	
ART UNIT	**PAPER NUMBER**
2633	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/080,944	BUCKMAN ET AL.	
	Examiner	Art Unit	
	Agustin Bello	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-16 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2/22/02 10/25/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 8-9, and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Robertson (U.S. Patent No. 5,857,042).

Regarding claims 1 and 14, Robertson teaches a two-dimensional free space optical link (Figure 11) comprising: an array of tightly-coupled, multi-wavelength arrays of vertical cavity surface emitting lasers (VCSELS) (reference numeral 32_1-32_9 in Figure 11), operating at predetermined wavelengths; collimating optics (reference numeral 29A-29I in Figure 9) for collimating the optical signals emitted from each said multi-wavelength array of VCSELs into a single uniform optical signal (as seen in Figure 3); and an array of tightly-coupled optical receiver arrays (e.g. the corresponding receiver array for Figure 11 and shown in Figure 3 and 9), each said receiver array being configured to receive the signals from one of said VCSEL arrays, wherein the wavelengths of the received signals generally match the wavelengths of the signals transmitted by said VCSEL arrays such that multiple optical wavelengths can be simultaneously communicated at high-speed from one of said VCSEL arrays to one of said receiver arrays across a very short haul channel.

Regarding claim 2, Robertson teaches that said VCSELS are selected from the group consisting of bottom-emitting VCSELS and top-emitting VCSELS (Figure 8).

Regarding claim 3, Robertson teaches that said VCSEL array is configured as a tightly-bound cluster of VCSELS (as seen in Figure 11).

Regarding claim 4, Robertson teaches the emitting elements of each VCSEL in said cluster form a small group positioned at the focal point of said collimating optics (as seen in Figure 3).

Regarding claims 8 and 15, Robertson teaches that said short haul channel is free space (as seen in Figures 3-7).

Regarding claims 9 and 16, Robertson teaches that said short haul channel is optical fibers (as seen in Figure 8).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 5-7 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robertson in view of Mays (U.S. Patent No. 6,853,812).

Regarding claim 5, Robertson differs from the claimed invention in that Robertson fails to specifically teach that said tightly-coupled optical receiver array of the said receiver arrays comprise partitioned optical filters and mating photodetectors. However, Mays in the same field of optical communication, teaches tightly-coupled optical receiver arrays wherein said receiver arrays comprise partitioned optical filters and mating photodetectors (Figures 10B, 11, and 13). One skilled in the art would have been motivated to employ partitioned optical filters and mating

photodetectors as taught by Mays in the device of Robertson in order to allow only the appropriate detectors to sense the information transmitted with a very high signal-to-noise ratio and discrimination capability (column 7 lines 14-23). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to form the tightly-coupled optical receiver array of the said receiver arrays of Robertson so that they include partitioned optical filters and mating photodetectors as taught by Mays.

Regarding claims 6, the combination of Robertson and Mays teaches that said optical filters of each said optical receiver array further comprise multiple segments, each segment having an individual filter element designed to pass a transmitted optical signal with a specific wavelength range (Figure 11 of Mays).

Regarding claim 7, the combination of Robertson and Mays teaches that said photodetectors of each said optical receiver array further comprise multiple segments (Figure 9, 10B of Robertson; 10B of Mays), each segment having an individual photodetector element that converts the transmitted optical signal received from each said filter element to an electrical signal.

Regarding claim 10, Robertson teaches a method of creating a two-dimensional optical link, the method comprising: assembling a vertical cavity surface emitting laser (VCSEL) emitter array (Figure 11), wherein the VCSEL emitters in the array are arranged in a regular pattern; fabricating a receiver array (reference numeral 31A-31I in Figure 9), wherein the receiver array comprises a plurality photodetector arrangements (reference numeral 31A-31I in Figure 10B); and mounting the VCSEL emitter array and receiver array onto respective transmitter and receiver electronic circuits configured to receive the respective emitter and receiver arrays

(Figure 9-11). Robertson differs from the claimed invention in that Robertson fails to specifically teach that each VCSEL emitter is set for a different emissive wavelength and that the receiver array includes a plurality of optical filters mating with the plurality of photodetector. However, Mays, in the same field of optical communication teaches both of these limitations (column 5 lines 51-67 and Figures 10A-13). One skilled in the art would have been motivated to emit different wavelengths from each of the emitters and include a plurality of optical filters mating with the plurality of photodetectors in order to uniquely associate a transmitter with a receiver (column 6 lines 41-54 of Mays). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to allow each VCSEL emitter to transmit a different emissive wavelength and include a plurality of optical filters mating with the plurality of photodetector at the receiver array.

Claim 11 recites a combination of claims 6 and 7 which were rejected above. As such, claim 11 is rejected for the same reasons as stated in the rejection of claims 6 and 7.

Regarding claim 12, Robertson teaches that said short haul channel is free space (as seen in Figures 3-7).

Regarding claim 13, Robertson teaches that said short haul channel is optical fibers (as seen in Figure 8).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AB

A. Bello
AGUSTIN BELLO
PATENT EXAMINER
05/06/05